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EXAMINER

STARKS, WILBERT L

ART UNIT	PAPER NUMBER
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2129

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/713,342

Applicant(s)

DRISSI ET AL.

Examiner

Wilbert L. Starks, Jr.

Art Unit

2129

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-23 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. All claims have been examined. Examiner provides this non-final action to explain the rejection in further detail.

Claim Rejections - 35 U.S.C. § 101

35 U.S.C. §101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. The invention as disclosed in claims 1-23 is directed to non-statutory subject matter. Claims 1, 8, 13, 16, 21, 22, and 23 are not claimed to be practiced on a computer. It is clear that these claims are not limited to practice in the technological arts. On that basis alone, those claims are clearly nonstatutory.
3. Regardless of whether the claims are in the technological arts, none of the claims in the case is limited to practical applications in the technological arts. Examiner finds that *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) controls the 35 U.S.C. §101 issues on that point for reasons made clear by the Federal Circuit in *AT&T Corp. v. Excel Communications, Inc.*, 50 USPQ2d 1447 (Fed. Cir. 1999). Specifically, the Federal Circuit held that the act of:

“taking several abstract ideas and manipulating them together adds nothing to the basic equation.” *AT&T v. Excel* at 1453 quoting *In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994).

Examiner finds that Applicant's classified "data" are just such abstract ideas.

4. Examiner bases his position upon guidance provided by the Federal Circuit in *In re Warmerdam*, as interpreted by *AT&T v. Excel*. This set of precedents is within the same line of cases as the *Alappat-State Street Bank* decisions and is in complete agreement with those decisions. *Warmerdam* is consistent with *State Street*'s holding that:

"Today we hold that *the transformation of data, representing **discrete dollar amounts**, by a machine through a series of mathematical calculations into a final share price*, constitutes a practical application of a mathematical algorithm, formula, or calculation because it produces 'a useful, concrete and tangible result' -- *a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.*" (emphasis added) *State Street Bank* at 1601.

5. True enough, that case later eliminated the "business method exception" in order to show that business methods were not per se nonstatutory, but the court clearly *did not* go so far as to make business methods *per se* statutory. A plain reading of the excerpt above shows that the Court was *very specific* in its definition of the new *practical application*. It would have been much easier for the court to say that "business methods were per se statutory" than it was to define the practical application in the case as "...the transformation of data, **representing discrete dollar amounts**, by a machine through a series of mathematical calculations into a final share price..."

6. The court was being very specific.

7. Additionally, the court was also careful to specify that the useful, concrete and tangible result" it found was "a final share price momentarily fixed for recording purposes and even accepted and **relied upon by regulatory authorities and in subsequent trades.**"

8. Applicant cites no such specific results to define a useful, concrete and tangible result. Neither does Applicant specify the associated practical application with the kind of specificity the Federal Circuit used.

9. Furthermore, in the case *In re Warmerdam*, the Federal Circuit held that:

“the dispositive issue for assessing compliance with Section 101 in this case is whether the claim is for a process that goes beyond **simply manipulating ‘abstract ideas’ or ‘natural phenomena’** ... As the Supreme Court has made clear, ‘[a]n idea of itself is not patentable, ... *taking several abstract ideas and manipulating them together adds nothing to the basic equation.*” In re Warmerdam 31 USPQ2d at 1759 (emphasis added).

10. In the present case, the Examiner finds that Applicant manipulated a set of abstract “input data” to solve mathematical problems in the **abstract**. Under *Warmerdam*, the result of such manipulations is not statutory.

11. Since *Warmerdam* is within the *Alappat-State Street Bank* line of cases, it takes the same view of “useful, concrete, and tangible” the Federal Circuit applied in *State Street Bank*. Therefore, under *State Street Bank*, this could not be a “useful, concrete and tangible result”. There is only manipulation of abstract ideas.

12. The Federal Circuit validated the use of *Warmerdam* in its more recent *AT&T Corp. v. Excel Communications, Inc.* decision. The court noted that:

Art Unit: 2129

“Finally, the decision in *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) is not to the contrary. *** The court found that the claimed process did nothing more than manipulate basic mathematical constructs and concluded that ‘*taking several abstract ideas and manipulating them together adds nothing to the basic equation*’; hence, the court held that the claims were properly rejected under §101 ... Whether one agrees with the court’s conclusion on the facts, the holding of the case is a straightforward application of the basic principle that mere laws of nature, natural phenomena, and abstract ideas are not within the categories of inventions or discoveries that may be patented under §101.”(emphasis added) *AT&T Corp. v. Excel Communications, Inc.*, 50 USPQ2d 1447, 1453 (Fed. Cir. 1999).

13. The fact that the invention is merely the manipulation of *abstract ideas* is indisputable. The object referred to by Applicant’s abstract word “data” is simply a mathematical/logical construct in the abstract. Consequently, the necessary conclusion under *AT&T*, *State Street* and *Warmerdam*, is straightforward and clear. The claims take several abstract ideas (i.e., a range of data points in the abstract) and manipulate them together adding nothing to the basic equation. Claims 1-6 are rejected under 35 U.S.C. §101.

14. Regarding the “system” and “computer readable medium” recitals in claims 16-22 and 23, the invention is still found to be nonstatutory. Any other finding would be at variance with current case law. Specifically, the Federal Circuit held in *AT&T v. Excel*, 50 USPQ2d 1447 (Fed. Cir. 1999) held that:

“Whether stated implicitly or explicitly, we consider the scope of Section 101 to be **the same regardless of the form** – machine or process – in which a particular claim is drafted.” *AT&T v. Excel*, 50 USPQ2d 1447, 1452 citing *In re Alappat*, 33 F.3d at 1581, 31 USPQ2d at 1589 (Rader, J., concurring)

15. Examiner considers the scope of Section 101 to be the same regardless of whether Applicant *claims* a "process," "machine," or "product of manufacture". While claims 22 and 23 are drawn to "products of manufacture", they are insufficient by themselves to limit the claims to statutory subject matter. Examiner's position is clearly consistent with *Alappat*, and *AT&T* and is implicitly consistent with *Warmerdam* and *State Street*. Accordingly, those claims are properly rejected.

Claim Rejections - 35 U.S.C. § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. Claims 1- 4, 8-9, 13-19, and 21-23 are rejected under 35 U.S.C. §102(b) as being anticipated by McAulay, A.D.; Oh, J.C.; *Improved learning in genetic rule-based classifier systems*, Systems, Man, and Cybernetics, 1991. 'Decision Aiding for Complex Systems, Conference Proceedings., 1991 IEEE International Conference on, 13-16 Oct. 1991, Page(s): 1393 -1398 vol. 2.

Claim 1

18. Claim 1's "classifying objects in a domain dataset using a data classification model, said data classification model having a bias;" is anticipated by McAulay, A.D., Figure 1, lines 2-3. Specifically, the "structures" in line 3 of the above reference are the genetic structures of the classifiers that are being evolved (See, McAulay, A.D., page

1394, second column, second full paragraph under section "B" Titled: "Classifier Systems.")

19. Claim 1's "evaluating the performance of said classifying step; and" is anticipated by McAulay, A.D., Figure 1, lines 4-5. See also, McAulay, A.D., page 1394, second column, second full paragraph under section "B" Titled: "Classifier Systems."

20. Claim 1's "modifying said bias based on said performance evaluation." is anticipated by McAulay, A.D., Figure 1, lines 10-11. McAulay, A.D., page 1396, second column, first full paragraph under section "C" Titled: "Fine Tuned Search For Useful Rules -- Specializing." The next to last sentence discusses placing the hyperplanes of the classifiers (i.e., classification threshold, or "bias," as claimed by Applicant.)

Claim 2

21. Claim 2's "The method of claim 1, wherein said steps of classifying and evaluating are performed for a plurality of said domain datasets and wherein said method further comprising the steps of recording a performance value for each combination of said domain datasets and said bias." is anticipated by McAulay, A.D., Figure 1, lines 4-5. See also, McAulay, A.D., page 1394, second column, second full paragraph under section "B" Titled: "Classifier Systems."

Claim 3

22. Claim 3's "The method of claim 2, further comprising the step of processing said

Art Unit: 2129

recorded performance values for each combination of said domain datasets and said bias to generate one or more rules, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models.” is anticipated by McAulay, A.D., Figure 1, lines 4-5.

Claim 4

23. Claim 4’s “The method of claim 3, further comprising the step of selecting a data classification model for classifying a domain dataset by comparing characteristics of said domain dataset to said rules.” is anticipated by McAulay, A.D., p. 1393, third paragraph, first three lines of the paragraph.

Claim 8

24. Claim 8’s “classifying objects in a plurality of domain datasets using one of a number of data classification models, each of said data classification models having a corresponding bias;” is anticipated by McAulay, A.D., Figure 1, lines 2-3. Specifically, the “structures” in line 3 of the above reference are the genetic structures of the classifiers that are being evolved (See, McAulay, A.D., page 1394, second column, second full paragraph under section “B” Titled: “Classifier Systems.”)

25. Claim 8’s “evaluating the performance of each of said domain dataset classifications;” is anticipated by McAulay, A.D., Figure 1, lines 4-5. See also, McAulay,

A.D., page 1394, second column, second full paragraph under section "B" Titled: "Classifier Systems."

26. Claim 8's "maintaining a performance value for each combination of said domain datasets and said bias;" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

27. Claim 8's "processing said performance values for each combination of said domain datasets and said bias to generate one or more rules, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models; and" is anticipated by McAulay, A.D., Figure 1, lines 10-11.

28. Claim 8's "selecting a data classification model for classifying a domain dataset by comparing characteristics of said domain dataset to said rules." is anticipated by McAulay, A.D., Figure 1, lines 10-11. McAulay, A.D., page 1396, second column, first full paragraph under section "C" Titled: "Fine Tuned Search For Useful Rules -- Specializing." The next to last sentence discusses placing the hyperplanes of the classifiers (i.e., classification threshold, or "bias," as claimed by Applicant.)

Claim 9

29. Claim 9's "The method of claim 8, further comprising the step of modifying at least one of said biases based on said performance evaluation." is anticipated by McAulay, A.D., Figure 1, lines 10-11. McAulay, A.D., page 1396, second column, first full paragraph under section "C" Titled: "Fine Tuned Search For Useful Rules --

Art Unit: 2129

Specializing." The next to last sentence discusses placing the hyperplanes of the classifiers (i.e., classification threshold, or "bias," as claimed by Applicant.)

Claim 13

30. Claim 13's "applying an adaptive learning algorithm to said domain dataset to select a data classification model, said data classification model having a bias;" is anticipated by McAulay, A.D., Figure 1, lines 2-3. Specifically, the "structures" in line 3 of the above reference are the genetic structures of the classifiers that are being evolved (See, McAulay, A.D., page 1394, second column, second full paragraph under section "B" Titled: "Classifier Systems.")

31. Claim 13's "classifying objects in said domain dataset using said selected data classification model;" is anticipated by McAulay, A.D., p. 1393, third paragraph, first three lines of the paragraph.

32. Claim 13's "evaluating the performance of said classifying step;" is anticipated by McAulay, A.D., Figure 1, lines 4-5. See also, McAulay, A.D., page 1394, second column, second full paragraph under section "B" Titled: "Classifier Systems."

33. Claim 13's "maintaining an indication of said performance of said model for said domain dataset; repeating said applying, classifying and evaluating steps for a plurality of said domain datasets; and" is anticipated by McAulay, A.D., Figure 1, lines 4-5. See also, McAulay, A.D., page 1394, second column, second full paragraph under section "B" Titled: "Classifier Systems."

34. Claim 13's "processing said performance values for each combination of said domain datasets and said bias to adjust one or more rules for subsequent data classification, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models." is anticipated by McAulay, A.D., Figure 1, lines 10-11.

Claim 14

35. Claim 14's "The method of claim 13, further comprising the step of selecting a data classification model for classifying a domain dataset by comparing characteristics of said domain dataset to said rules." is anticipated by McAulay, A.D., p. 1393, third paragraph, first three lines of the paragraph.

Claim 15

36. Claim 15's "The method of claim 13, further comprising the step of modifying at least one of said biases based on said performance evaluation." is anticipated by McAulay, A.D., Figure 1, lines 10-11. McAulay, A.D., page 1396, second column, first full paragraph under section "C" Titled: "Fine Tuned Search For Useful Rules -- Specializing." The next to last sentence discusses placing the hyperplanes of the classifiers (i.e., classification threshold, or "bias," as claimed by Applicant.)

Claim 16

37. Claim 16's "a memory that stores computer-readable code; and" is anticipated by McAulay, A.D., Figure 1.

38. Claim 16's "a processor operatively coupled to said memory, said processor configured to implement said computer-readable code, said computer-readable code configured to:" is anticipated by McAulay, A.D., Figure 1.

39. Claim 16's "classify objects in a domain dataset using a data classification model, said data classification model having a bias;" is anticipated by McAulay, A.D., Figure 1, lines 10-11.

40. Claim 16's "evaluate the performance of said classifying step; and" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

41. Claim 16's "modify said bias based on said performance evaluation." is anticipated by McAulay, A.D., Figure 1, lines 10-11.

Claim 17

42. Claim 17's "The system of claim 16, wherein said processor is further configured to classify said objects and evaluate said performance for a plurality of said domain datasets and wherein said processor records a performance value for each combination of said domain datasets and said bias." is anticipated by McAulay, A.D., Figure 1, lines 4-5.

Claim 18

43. Claim 18's "The system of claim 17, wherein said processor is further configured to process said recorded performance values for each combination of said domain datasets and said bias to generate one or more rules, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models." is anticipated by McAulay, A.D., Figure 1, lines 10-11.

Claim 19

44. Claim 19's "The system of claim 18, wherein said processor is further configured to select a data classification model for classifying a domain dataset by comparing characteristics of said domain dataset to said rules." is anticipated by McAulay, A.D., Figure 1, lines 4-5.

Claim 21

45. Claim 21's "a memory that stores computer-readable code; and" is anticipated by McAulay, A.D., Figure 1, lines 10-11.

46. Claim 21's "a processor operatively coupled to said memory, said processor configured to implement said computer readable code, said computer-readable code configured to:" is anticipated by McAulay, A.D., Figure 1.

Art Unit: 2129

47. Claim 21's "classify objects in a plurality of domain datasets using one of a number of data classification models, each of said data classification models having a corresponding bias;" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

48. Claim 21's "evaluate the performance of each of said domain dataset classifications;" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

49. Claim 21's "maintaining a performance value for each combination of said domain datasets and said bias;" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

50. Claim 21's "process said performance values for each combination of said domain datasets and said bias to generate one or more rules, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models; and" is anticipated by McAulay, A.D., Figure 1, lines 10-11.

51. Claim 21's "select a data classification model for classifying a domain dataset by comparing characteristics of said domain dataset to said rules." is anticipated by McAulay, A.D., Figure 1, lines 4-5.

Claim 22

52. Claim 22's "a step to classify objects in a domain dataset using a data classification model, said data classification model having a bias;" is anticipated by McAulay, A.D., Figure 1, lines 2-3. Specifically, the "structures" in line 3 of the above reference are the genetic structures of the classifiers that are being evolved (See,

McAulay, A.D., page 1394, second column, second full paragraph under section "B"
Titled: "Classifier Systems.")

53. Claim 22's "a step to evaluate the performance of said classifying step; and" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

54. Claim 22's "a step to modify said bias based on said performance valuation." is anticipated by McAulay, A.D., Figure 1, lines 10-11.

Claim 23

55. Claim 23's "a step to classify objects in a plurality of domain datasets using one of a number of data classification models, each of said data classification models having a corresponding bias;" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

56. Claim 23's "a step to evaluate the performance of each of said domain dataset classifications;" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

57. Claim 23's "a step to maintaining a performance value for each combination of said domain datasets and said bias;" is anticipated by McAulay, A.D., Figure 1, lines 4-5.

58. Claim 23's "a step to process said performance values for each combination of said domain datasets and said bias to generate one or more rules, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models; and" is anticipated by McAulay, A.D., Figure 1, lines 10-11.

59. Claim 23's "a step to select a data classification model for classifying a domain dataset by comparing characteristics of said domain dataset to said rules." is anticipated by McAulay, A.D., Figure 1, lines 4-5.

Claim Rejections - 35 U.S.C. § 103

60. The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

61. Claims 5-7, 10-12, and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over McAulay, A.D. et al in view of Lewis, David D., *An Evaluation of Phrasal and Clustered Representations on a Text Categorization Task*, Proceedings of the 15th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, June 1992, pp. 37-50.

Claim 5

62. McAulay, A.D. et al shows the use of a genetic rule-based classifier but does not disclose claim 5's "The method of claim 1, wherein said domain dataset is represented using a set of meta-features." Lewis, David D., however does show a classifier using "meta-features".

63. *Motivation* – The claimed meta-features would have been a highly desirable feature in the art due to its ability to improve text retrieval effectiveness and Lewis,

David D. recognizes that the text retrieval effectiveness would be improved if the meta-features of Lewis David D. were substituted for the standard feature sets of McAulay, Alastair, D. Therefore, it would have been obvious to one of ordinary skill in the art to combine Lewis with McAulay to obtain the invention as specified in claim 5.

Claim 6

64. McAulay, A.D. et al shows the use of a genetic rule-based classifier but does not disclose claim 6's "The method of claim 5, wherein said meta-features includes a concept variation meta-feature." Lewis, David D., however does show a classifier using "meta-features".

65. *Motivation* – The claimed meta-features would have been a highly desirable feature in the art due to its ability to improve text retrieval effectiveness and Lewis, David D. recognizes that the text retrieval effectiveness would be improved if the meta-features of Lewis David D. were substituted for the standard feature sets of McAulay, Alastair, D. Therefore, it would have been obvious to one of ordinary skill in the art to combine Lewis with McAulay to obtain the invention as specified in claim 6.

Claim 7

66. McAulay, A.D. et al shows the use of a genetic rule-based classifier but does not disclose claim 7's "The method of claim 5, wherein said meta-features includes an average weighted distance meta-feature that measures the density of the distribution of

Art Unit: 2129

said at least one domain dataset.” Lewis, David D., however does show a classifier using “meta-features”.

67. *Motivation* – The claimed meta-features would have been a highly desirable feature in the art due to its ability to improve text retrieval effectiveness and Lewis, David D. recognizes that the text retrieval effectiveness would be improved if the meta-features of Lewis David D. were substituted for the standard feature sets of McAulay, Alastair, D. Therefore, it would have been obvious to one of ordinary skill in the art to combine Lewis with McAulay to obtain the invention as specified in claim 7.

Claim 10

68. McAulay, A.D. et al shows the use of a genetic rule-based classifier but does not disclose claim 10's “The method of claim 8, wherein said domain dataset is represented using a set of meta-features.” Lewis, David D., however does show a classifier using “meta-features”.

69. *Motivation* – The claimed meta-features would have been a highly desirable feature in the art due to its ability to improve text retrieval effectiveness and Lewis, David D. recognizes that the text retrieval effectiveness would be improved if the meta-features of Lewis David D. were substituted for the standard feature sets of McAulay, Alastair, D. Therefore, it would have been obvious to one of ordinary skill in the art to combine Lewis with McAulay to obtain the invention as specified in claim 10.

Claim 11

70. McAulay, A.D. et al shows the use of a genetic rule-based classifier but does not disclose claim 11's "The method of claim 10, wherein said meta-features includes a concept variation meta-feature." Lewis, David D., however does show a classifier using "meta-features".

71. *Motivation* – The claimed meta-features would have been a highly desirable feature in the art due to its ability to improve text retrieval effectiveness and Lewis, David D. recognizes that the text retrieval effectiveness would be improved if the meta-features of Lewis David D. were substituted for the standard feature sets of McAulay, Alastair, D. Therefore, it would have been obvious to one of ordinary skill in the art to combine Lewis with McAulay to obtain the invention as specified in claim 11.

Claim 12

72. McAulay, A.D. et al shows the use of a genetic rule-based classifier but does not disclose claim 12's "The method of claim 10, wherein said meta-features includes an average weighted distance meta-feature that measures the density of the distribution of said at least one domain dataset." Lewis, David D., however does show a classifier using "meta-features".

73. *Motivation* – The claimed meta-features would have been a highly desirable feature in the art due to its ability to improve text retrieval effectiveness and Lewis, David D. recognizes that the text retrieval effectiveness would be improved if the meta-features of Lewis David D. were substituted for the standard feature sets of McAulay,

Alastair, D. Therefore, it would have been obvious to one of ordinary skill in the art to combine Lewis with McAulay to obtain the invention as specified in claim 12.

Claim 20

74. McAulay, A.D. et al shows the use of a genetic rule-based classifier but does not disclose claim 20's "The system of claim 16, wherein said domain dataset is represented using a set of meta-features." Lewis, David D., however does show a classifier using "meta-features".

75. *Motivation* – The claimed meta-features would have been a highly desirable feature in the art due to its ability to improve text retrieval effectiveness and Lewis, David D. recognizes that the text retrieval effectiveness would be improved if the meta-features of Lewis David D. were substituted for the standard feature sets of McAulay, Alastair, D. Therefore, it would have been obvious to one of ordinary skill in the art to combine Lewis with McAulay to obtain the invention as specified in claim 20.

Response to Arguments

76. Applicant's arguments filed 02/22/2005 have been fully considered but they are not persuasive. Specifically, Applicant makes the following arguments:

Argument 1

The Examiner asserts that Claims 1-23 are not claimed to be practiced on a computer and that it is clear that these claims are not limited to practice in the technological arts. To the contrary, however, each of the independent claims are expressly directed to a practical method of (or system for) "classifying data." For example, the method **can** be used to

classify real numerical vectors. Thus, each of these claims are clearly tied to a practical application. A process that is limited to a practical application of an abstract idea or mathematical algorithm in 'the technological arts is patentable. See Examination Guidelines for Computer-Related Inventions, Section IV. B. 2. b. (ii). (emphasis added)

77. In this argument, Applicant admits that the invention is an algorithm operating on purely unspecified variables (i.e., "real numerical vectors," in the given example.)

78. How can a claimed invention that is admittedly a set of unspecified variables manipulated by pure algorithms be statutory in any form?

79. Applicant's arguments for a finding of compliance are purely conclusory. Examiner applied the standard used In re Warmerdam to reject the claims. Applicant has failed to shift his burden to show that Examiner's application of this standard was in any way improper. In fact, Applicant has admitted the very elements that trigger the application of the Warmerdam standard (i.e., the pure algorithmic manipulation of abstractions... such as the manipulation of a "domain data set" where the "domain" remains unspecified.)

80. Here is Examiner's interpretation of the Warmerdam standard and how it was applied in this case:

81. The Federal Circuit in In re Warmerdam holds that:

...[T]he dispositive issue for assessing compliance with Section 101 in this case is whether the claim is for a process that goes beyond simply manipulating 'abstract ideas' or 'natural phenomena' ... As the Supreme Court has made clear, '[a]n idea of itself is not patentable, ... taking several abstract ideas and manipulating them together adds nothing to the basic equation'. In re Warmerdam 31 USPQ2d at 1759 (emphasis added).

82. Examiner interprets the Federal Circuit's word "manipulating" to include algorithms and computer programs per se that are mathematical or logical (i.e., mathematical in base 2) in nature. Examiner finds that Applicant's claimed "classification method" is a manipulation sequence that satisfies this definition.

Further, Examiner interprets the term "abstract ideas" to include unspecified variables. Examiner finds that Applicant's claimed "domain data sets"...of unspecified domain...satisfy this definition.

83. Examiner therefore, finds it dispositive that taking several abstract ideas (i.e., "domain data sets") and manipulating them together (i.e., with a "classification algorithm") adds nothing to the basic equation. An algorithm is an algorithm and Applicant has not added any statutory matter that causes the claims to come within compliance of 35 U.S.C. §101.

Argument 2

The Supreme Court has stated that the 'transformation and reduction of an article to a different state or thing' is the clue to patentability of a process claim." *Gottshalk v. Benson*, 409 U.S. 63, 70, 175 U.S.P.Q. (BNA) 676 (1972). In other words, claims that require some kind of transformation of subject matter, which has been held to include intangible subject matter, such as data or signals that are representative of or constitute physical activity or objects, have been held to comply with Section 101. See, for example, *In re Warmerdam*, 31 U.S.P.Q.2d (BNA) 1754, 1759 11.5 (Fed. Cir. 1994) or *In re Schrader*, 22 F.3d 290, 295, 30 U.S.P.Q.2d (BNA) 1455, 1459 n.12 (Fed. Cir. 1994). (emphasis added)

84. Examiner finds no limitations in the claims to show that they are drawn to include the transformation of data or signals that are representative of or constitute physical

Art Unit: 2129

activity or objects. Applicant's claims are drawn to the manipulation of "domain data sets" of unspecified domain...there is no limitation to data or signals that are representative of or constitute physical activity or objects.

85. Applicant has not shifted his burden of showing that the claims are so limited. On this basis, Examiner finds that the rejections have not been shown to be improper.

Argument 3

Each independent claim includes at least one transformation. For example, independent claims 16 and 22 modify the bias of one or more data classification models, based on a performance evaluation. Thus, a modified data classification model is provided. Claims 8, 21 and 23 classify objects and select a data classification model for classifying a domain dataset by comparing characteristics of the domain dataset to rules. Thus, an object classification is provided. Finally, claim 13 processes performance values for each combination of domain dataset and said bias to adjust one or more rules for subsequent data classification. Thus, adjusted rules are provided. (emphasis added)

86. Examiner finds no limitations in the claims to show that they are drawn to include the transformation of data or signals that are representative of or constitute physical activity or objects. Applicant's claims are drawn to the manipulation of "domain data sets" of unspecified domain...there is no limitation to data or signals that are representative of or constitute physical activity or objects.

87. Applicant has not shifted his burden of showing that the claims are so limited. On this basis, Examiner finds that the rejections have not been shown to be improper.

Argument 4

Regarding claim 1, Applicants note that Lewis teaches that "most current indexing languages represent documents as tuples or vectors of numeric

or binary values, with each value corresponding to an indexing term." (Page 38, Section 2.) Lewis then teaches that, "for clarity, we therefore call the features of indexing terms metafeatures." (Page 38, Section 2.2). Metafeatures in Lewis are therefore features of indexing terms (the individual values representing a document) and not domain datasets. More importantly, Lewis does not disclose selecting data classification models based on a meta-feature that characterizes a domain data set. In addition, since Lewis only discloses the use of one algorithm (the genetic algorithm), there is no selection of classification models. (emphasis added)

88. Applicant has not provided a limitation to the word "domain". Applicant has not shown why unspecified "data sets" cannot include features of indexing terms. The broadest reasonable interpretation of the term "data sets" includes "features of indexing terms." Applicant has again not shifted his burden of proving that the rejections of the claims were improper.

Argument 5

Thus, McAulay et al. or Lewis, alone or in combination, do not disclose or suggest classifying objects in a domain dataset using one or more data classification models, each of said one or more data classification models having a bias; selecting at least one of said one or more data classification models based on a meta-feature that characterizes said domain data set; evaluating the performance of said classifying step; and modifying said bias based on said performance evaluation, as required by independent claims 1, 16, and 22, do not disclose or suggest applying an adaptive learning algorithm to said domain dataset to select a data classification model based on a meta-feature that characterizes said domain data set, said data classification model having a bias; classifying objects in said domain dataset using said selected data classification model; evaluating the performance of said classifying step; maintaining an indication of said performance of said model for said domain dataset', repeating said applying, classifying and evaluating steps for a plurality of said domain datasets; and processing said performance values for each combination of said domain datasets and said bias to adjust one or more rules for subsequent data classification, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models, as required by independent claim 13, and do not disclose or suggest classifying objects in a plurality of domain datasets using one of a number of data classification models, each of said data classification models having a corresponding bias; evaluating the performance of each

of said domain dataset classifications; maintaining a performance value for each combination of said domain datasets and said bias; processing said performance values for each combination of said domain datasets and said bias to generate one or more rules, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models; and selecting a data classification model for classifying a domain dataset by comparing characteristics of said domain dataset to said rules, as required by independent claims 8, 21, and 23. (emphasis added)

89. Applicant's "argument" is a run-on conclusory statement that does not specify any feature that is claimed by Applicant that does not appear in the prior art. In fact, this "argument" does not fairly represent the invention as presented in a specific claim...it is a stringing together of the features of several claims. Applicant has not shifted his burden of addressing the particularized rejections made by Examiner that addresses each element of each claim. Applicant simply makes a run-on conclusory statement.

Argument 6

The Examiner asserts that the limitation of claim 3 is taught by McAulay (FIG. 1: lines 4-5). Applicants note, however, that McAulay does not disclose or suggest generating one or more rules, each of said rules specifying one or more characteristics of said domain datasets and a corresponding bias that should be utilized in one of said data classification models. (emphasis added)

90. A casual glance at the partial paragraph at the top of the second column on page 1393 shows the following quote:

"Also the rule-discovery algorithms, in our case genetic algorithms tend to produce a number of general rules that are undesirable when attempting to discriminate between many classes." (emphasis added.)

Art Unit: 2129

91. The prior art discloses a "rule-discovery algorithm." Necessarily, rules are generated in this system. Therefore, Applicant's statement that there is no rule generation in the prior art is erroneous. A "bias" is inherent to a classification system...with no classification "bias" or threshold, the system would not know where to draw the line for making distinctions.

Argument 7

Claims 4 and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over McAulay et al. in view of Lewis. The Examiner asserts that the limitation of claim 4 is taught by McAulay (Page 1393, third paragraph, first three line of the paragraph). Applicants note, however, that McAulay does not disclose or suggest the step of selecting a data classification model for classifying a domain dataset by comparing characteristics of said domain dataset to said rules. (emphasis added)

92. A casual glance at the partial paragraph at the top of the second column on page 1393 shows the following quote:

"Also the rule-discovery algorithms, in our case genetic algorithms tend to produce a number of general rules that are undesirable when attempting to discriminate between many classes." (emphasis added.)

93. The prior art discloses a "rule-discovery algorithm." Necessarily, rules are generated in this system. Therefore, Applicant's statement that there is no step of selecting a data classification model by comparing characteristics of the domain data set to the rules in the prior art is erroneous. The prior art is Genetic...that is, natural Selection. A genetic system inherently applies the rules it is evolving in order to

Art Unit: 2129

generate a fitness measure that is used to select the members for the next generation.

Applicant's statements are again...erroneous.

Conclusion

Any inquiry concerning this NON-FINAL Office Action or earlier communications from the Examiner should be directed to Wilbert L. Starks, Jr. whose telephone number is (571) 272-3691.

Alternatively, inquiries may be directed to the following:

S. P. E. Anthony Knight **(571) 272-3687**

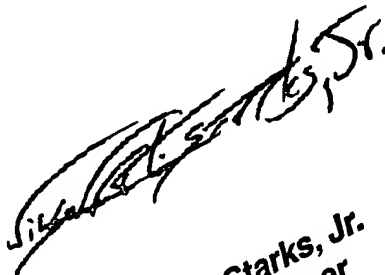
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WLS

15 May 2005

A handwritten signature in black ink, appearing to read 'Wilbert L. Starks, Jr.', written diagonally across the page.

Wilbert L. Starks, Jr.
Primary Examiner
Art Unit - 2121